

STATE OF MISSOURI  
DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION



**MISSOURI STATE OPERATING PERMIT**

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92<sup>nd</sup> Congress) as amended,

Permit No.: MO-0118877

Owner Name: Johnson County Egg Farm, LLC  
Owner's Address: 1275 Southwest Y Highway, Knob Noster, MO 65336

Operating Authority: Same as above  
Operating Authority's Address: Same as above

Facility Name: Johnson County Egg Farm  
Facility Address: 1275 Southwest Y Highway, Knob Noster, MO 65336

Legal Description: See Attached

Receiving Stream: See Attached  
First Classified Stream and ID: See Attached  
USGS Basin & Sub-watershed No.: See Attached

is authorized to discharge from the operation described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

**FACILITY DESCRIPTION**

Outfalls #001 - 014 – Animal Waste – SIC #0252

No Discharge – CAFO Class 1A

One 3 cell earthen storage basin/six concrete storage pits/one dead animal composteer/land application system/egg wash water/truck wash/storm water runoff/domestic wastewater piped to cell #1/two 2-story buildings over concrete pits/three pullet houses and one storage-compost building.

Design population equivalent is 192,492.

Design flow is 62,285 gallons/day (0.0623 MGD). 22,734,025 gallons/year

Design biosolids is 384,245 cu.ft./year. 6,488 tons per year.

Design number of animals is 1,940,000 Layer Hens and 709,920 Pullets (76,499 animal units).

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

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Effective Date

Revised

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Doyle Childers, Director, Department of Natural Resources  
Executive Secretary, Clean Water Commission

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Expiration Date  
MO 780-0041 (10-93)

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Edward Galbraith, Director of Staff, Clean Water Commission

**OPERATION DESCRIPTION (continued)**

**Total Number of Useable Acres Available for Land Application (excluding buffer zones):**

<u>Percent Slope</u>	<u>Land Owned by Permittee</u>	<u>Land with Spreading Agreements</u>	<u>Total Acres</u>
0-10%	568	20,700	21,268

**FACILITY DESCRIPTION**

The poultry egg laying and pullet operation consists of twelve confinement buildings, each containing 120,000 birds, two 2-story buildings over concrete pits each containing 250,000 birds, three pullet confinement houses, an egg processing building, dead animal composting building, a manure storage/composting building, a truck maintenance building, an office building, a feed mill and two employee break buildings. Wastes from twelve buildings are collected and stored in a three-cell earthen storage basin and 6 concrete pits. All domestic wastes from the laying operation's employees and the wastes from the egg processing and truck wash maintenance buildings are piped to the three cell earthen storage basin. Contaminated storm water from the production buildings and feed mill is diverted to the 3-cell storage basin. Uncontaminated storm water is diverted to a fresh water earthen storage basin.

Waste from buildings 13 and 14 are removed from the buildings approximately every 18 to 24 months and are land applied at rates calculated using the PAN approach. Wastes are removed from the poultry confinement buildings using a mechanical scraper. The poultry wastes are scraped into a concrete collection gutter at the end of the confinement buildings and then augured out of the confinement buildings into concrete manure storage pits. Each existing pit serves two confinement buildings. Wastes from the manure storage pits are pumped to the three-cell earthen storage basin when weather conditions prevent land application of manure. The lagoon currently receives approximately 60% of the manure wastes produced by the birds. Approximately 40% of the manure wastes are land applied from the concrete manure storage pits. Wastes are removed from the storage pits and land applied by subsurface injection or surface application. Wastes from the storage basin are land applied by four center pivot irrigation systems. Existing underground supply lines located north of cell #3 have connection risers at land application sites not owned by the permittee.

The three pullet buildings each house 236,640 birds. The manure drops onto conveyor belts where air is constantly blown to dry the manure. The manure is transported to enclosed conveyor belts, which move the manure to the storage building. The manure is loaded onto trucks inside the manure storage building. Mortalities will be composted in bins inside the manure storage building. The employee break building will use a septic tank with absorption fields.

Outfall #001 - System Type: 6 concrete manure pits/land application/storm water runoff.

Legal Description: SE ¼, Sec. 1, T45N, R24W, Johnson County.

Receiving Stream: Tributary to Long Branch (U)

Classified Receiving Stream: (00857) Long Branch (C) 303d

USGS & Subwatershed: 10300103-040002

Design Storage: 13 days.

Maximum Operating Level (Safety Volume Depth): one foot below overflow level.

Minimum Operating Level: 10 feet below overflow level.

Land Application: Rates are based on the plant available nitrogen approach.

The concrete pits receive manure from the production buildings. Manure that cannot be land applied from the pits is pumped into the storage basin at Outfall #002.

Outfall #002 - System Type: Three-cell earthen storage basin/land application/storm water runoff/truck wash and maintenance/egg wash water/domestic wastewater.

Legal Description: SE ¼, Sec. 1, T45N, R24W, Johnson County.

Receiving Stream: Tributary to Long Branch (U)

Classified Receiving Stream: (00857) Long Branch (C) 303d

USGS & Subwatershed: 10300103-040002

Design Storage: 365 days (22,734,000 gallons storage capacity).

Maximum Operating Level (Safety Volume Depth): one foot below overflow level.

<u>Minimum Operating Level for 365 days storage</u>	<u>Storage Volume for 365 days</u>
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Cell #1 - 2 feet below overflow level.	0
Cell #2 – 8 feet below overflow level.	11,367,000 gallons
Cell #3 – 8 feet below overflow level.	11,367,000 gallons

Land Application: Rates are based on the plant available nitrogen approach.

The storage basin receives manure, egg washwater, and domestic wastewater from employee restrooms, break room, and showers.

<u>Lagoon</u>	<u>Total Depth</u>	<u>Total Volume</u>
Cell #1	16 feet	6,018,048 cubic feet
Cell #2	15 feet	2,804,700 cubic feet
Cell #3	19 feet	3,541,809 cubic feet

Existing design flows for Outfall #001 and #002 are:

Domestic wastewater is 3,000 gallons/day.

Egg washwater is 4,500 gallons/day.

Manure production is 26,300 gallons/day.

Rainfall onto storage basins is 28,485 gallons/day (1-in-10 year flows).

Total design flow is 62,285 gallons/day.

Outfall #003 – Stream Monitoring – Upstream

Legal Description: NW ¼, SW ¼, NW ¼, Sec. 1, T45N, R24W, Johnson County, Long Branch at property line.

Receiving Stream: Tributary to Long Branch (U)

Classified Receiving Stream: (00857) Long Branch (C) 303d

USGS & Subwatershed: 10300103-040002

Outfall #004 – Storm Water

Legal Description: NW ¼, NW ¼, SE ¼, Sec. 1, T45N, R24W, Johnson County, Unnamed Tributary to Long Branch at property line.

Receiving Stream: Tributary to Long Branch (U)

Classified Receiving Stream: (00857) Long Branch (C) 303d

USGS & Subwatershed: 10300103-040002

Outfall #005 – Stream Monitoring

Legal Description: NE ¼, NE ¼, SW ¼, Sec. 6, T45N, R23W, Pettis County, Long Branch at property line.

Receiving Stream: Tributary to Long Branch (U)

Classified Receiving Stream: (00857) Long Branch (C) 303d

USGS & Subwatershed: 10300103-040002

Outfall #006 – Storm Water

Legal Description: NE ¼, NE ¼, NW ¼, Sec. 7, T45N, R23W, Pettis County, Unnamed Tributary to Long Branch at Highway Y.

Receiving Stream: Tributary to Long Branch (U)

Classified Receiving Stream: (00857) Long Branch (C) 303d

USGS & Subwatershed: 10300103-040002

Outfall #007 – Storm Water

Legal Description: SW ¼, SE ¼, NW ¼, Sec. 7, T45N, R23W, Pettis County, Unnamed Tributary to Long Branch at property line.

Receiving Stream: Tributary to Long Branch (U)

Classified Receiving Stream: (00857) Long Branch (C) 303d

USGS & Subwatershed: 10300103-040002

Outfall #008 – Storm Water

Legal Description: SE ¼, SE ¼, NW ¼, Sec. 12, T45N, R24W, Johnson County, Unnamed Tributary to Long Branch at property line.

Receiving Stream: Tributary to Long Branch (U)

Classified Receiving Stream: (00857) Long Branch (C) 303d

USGS & Subwatershed: 10300103-040002

Outfall #009 – Storm Water

Legal Description: NE ¼, NE ¼, NE ¼, Sec. 11, T45N, R24W, Johnson County, Unnamed Tributary to Long Branch at property line.

Receiving Stream: Tributary to Long Branch (U)

Classified Receiving Stream: (00857) Long Branch (C) 303d

USGS & Subwatershed: 10300103-040002

Outfall #010 – Storm Water

Legal Description: NE ¼, NE ¼, SE ¼, Sec. 1, T45N, R24W, Johnson County, Drainage Ditch north of lagoon.

Receiving Stream: Tributary to Long Branch (U)

Classified Receiving Stream: (00857) Long Branch (C) 303d

USGS & Subwatershed: 10300103-040002

Outfall #011 – Stream Monitoring

Legal Description: SW ¼, NW ¼, SW ¼, Sec. 3, T45N, R23W, Pettis County, Muddy Creek at Highway Y at property line.

Receiving Stream: Muddy Creek (C)

Classified Receiving Stream: (00855) Muddy Creek (C)

USGS & Subwatershed: 10300103-040002

Outfall #012 – Stream Monitoring

Legal Description: NE ¼, NE ¼, NW ¼, Sec. 35, T46N, R23W, Pettis County, Muddy Creek at Highway 127.

Receiving Stream: Muddy Creek (C)

Classified Receiving Stream: (00855) Muddy Creek (C)

USGS & Subwatershed: 10300103-040002

Outfall #013 – Buildings 13 and 14. Two 2-story buildings over concrete pits

Legal Description: SE ¼, Sec. 1, T45N, R24W, Johnson County

Receiving Stream: Tributary to Long Branch (U)

Classified Receiving Stream: (00857) Long Branch (C) 303d

USGS & Subwatershed: 10300103-040002

Design Number of Animals: 500,000 (250,000 each house)

Biosolids Volume: 374,815 cu.ft./yr. 6,372 tons per year

Design storage: 545 days

Total pit depth: 9 feet above bottom of pits

Upper Operating Level: 5 feet above bottom of pits

Land Application: Rates are based on the plant available nitrogen approach

Outfall #014 – (Proposed Construction) Three pullet buildings and one manure storage building

Legal Description: SE¼, NW¼, Sec. 12, T 45N, R24W, Johnson County

Lat/Long: +38 42 13.1/-93 31 06.3

First Classified Stream and ID: Long Branch (P) 1843

USGS Basin & sub-watershed No: 10300103-040002-Lamine River Basin

Design Number of Animals: 709,920 pullets (236,640 per house)

Design Population Equivalent: 26,622

Design Waste Volume: 231,045 cu. ft./yr.; 116 Tons per year

Design storage: one (1) 80' x 150' x 25' building, with 9' concrete walls, supplying about 180 days of storage. Trucks will be loaded inside the buildings and mortalities will be composted in bins inside the building.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS			PAGE NUMBER 6 of 17	
			PERMIT NUMBER MO-0118877	
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	MONITORING REQUIREMENTS		
		REQUIREMENTS	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfalls # 001, 002, 013, and 014 - Emergency Discharge Monitoring				
Flow	MGD	Comply with Water Quality Standards.  See Special Condition Numbers 1,2,3,8,9 & 10	once/day during discharge	24 hr. estimate
Dissolved Oxygen	mg/L		once/day during discharge	grab
Ammonia Nitrogen as N	mg/L		once/day during discharge	grab
BOD	mg/L		once/day during discharge	grab
pH – Units	SU		once/day during discharge	grab
Temperature	°C		once/day during discharge	grab
Outfalls # 001, 002, 013, and 014 - Nutrient Monitoring For Land Application				
Total Kjeldahl Nitrogen as N	mg/L	See Special Condition Numbers 4 & 10		composite
Ammonia Nitrogen as N	mg/L	Sample materials prior to land application. Analysis will be valid for a 3 month period.		composite
Total Phosphorus as P	mg/L			composite
Nitrate/Nitrite as N	mg/L		1/year	composite
Percent Moisture	%			composite
Outfalls # 001, 002, 013, and 014 - Land Application Operational Monitoring				
Lagoon or Storage Structure Freeboard	feet	See Special Condition Numbers 5, 10, and 15 through 22.	once/month	measured
Amount Land Applied	gallons or feet³		daily	total
Application Area	acres		daily	total
Application Rate	inches or feet³ /acre		daily	total
Rainfall	inches		daily	total
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>October 28, 2005</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.				
B. STANDARD CONDITIONS				
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Part I</u> STANDARD CONDITIONS DATED <u>October 1, 1980</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.				

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS				PAGE NUMBER 7 of 17	
				PERMIT NUMBER MO-0118877	
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	MONITORING REQUIREMENTS			
		DISCHARGE MAXIMUM	REQUIREMENTS	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfalls # 004, 006, 007, 008, 009, 010 - Storm Water Runoff Limits from Production Sites					
Flow	MGD	2.5	No discharge of process waste.	4/year	24 hr. estimate
pH – Units	SU		See Special Condition Numbers 1,2,6& 10	4/year	grab
Ammonia Nitrogen as N	mg/L			4/year	grab
Nitrate/nitrite as N	mg/L			4/year	grab
Total Phosphorus as P	mg/L			4/year	grab
Total Suspended Solids	mg/L			4/year	grab
Temperature	°C			4/year	grab
Outfalls # 003, 005, 011, and 012 - Stream Monitoring					
Flow	MGD	Samples shall be collected on a pre-determined sampling date. Collect 4 samples/year between April and November	4/year	24 hr. estimate	
pH – Units	SU		4/year	grab	
Ammonia Nitrogen as N	mg/L	Samples shall be only collected from flowing water. Samples from riffles are preferred. Do not collect a sample from pools that do not have water flowing into or out of the pool.	4/year	grab	
Nitrate + Nitrite as N	mg/L		4/year	grab	
Total Phosphorus as P	mg/L		4/year	grab	
Temperature	°C		4/year	grab	
Dissolved Oxygen	mg/L	See Special Condition Numbers 1,8 &10.	4/year	grab	
			April through November between 1 hour before to 3 hours after sunrise		
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>October 28, 2005</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.					
B. STANDARD CONDITIONS					
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Part I</u> STANDARD CONDITIONS DATED <u>October 1, 1980</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.					

<b>A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS</b>		PAGE NUMBER 8 of 17		
		PERMIT NUMBER MO-0122840		
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	MONITORING REQUIREMENTS		
		REQUIREMENTS	MEASUREMENT FREQUENCY	SAMPLE TYPE
<b>Land Application Fields - Soil Monitoring</b>				
Soil pH	Std Unit	See Special Condition Numbers 7,8 & 10	1/3 Years	Composite
Per Cent Organic Matter	%		1/3 Years	Composite
Cation Exchange Capacity	Std Unit		1/3 Years	Composite
Available Phosphorus as P (Bray P-1 test method)	mg/kg		1/3 Years	Composite
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>October 28, 2005</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.				
<b>B. STANDARD CONDITIONS</b>				
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Part I</u> STANDARD CONDITIONS DATED <u>October 1, 1980</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.				

## C. SPECIAL CONDITIONS

### 1. Water Quality Standards

- a. Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031.
- b. General Criteria The following water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
  - (1) Waters shall be free from substances in sufficient amounts to cause the formation or putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
  - (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
  - (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
  - (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal, or aquatic life;
  - (5) There shall be no significant human health hazard from incidental contact with the water;
  - (6) There shall be no acute toxicity to livestock or wildlife watering;
  - (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
  - (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such material is specifically permitted pursuant to section 260.200-260.247.

### 2. No-Discharge Requirement

- a. The permittee shall sell, give away or otherwise move process waste as needed to keep the storage structures within design operating levels. The storage structures shall be maintained as near to the lower operating level as practicable.  
Process waste discharge is not allowed by pumping, siphoning or any other method.



b. Definition: Process Waste

Process waste as defined in 10 CSR 20-6.300 includes manure, wastewater and any precipitation which comes into contact with any manure, litter or bedding or any other raw material or intermediate or final material or product used in the production of animals or direct products. It includes spillage or overflow from animal watering systems; washing, cleaning or flushing of pens, barns, manure pits or other associated animal operations; washing or spray cooling of animals; dust control; storm water runoff from animal confinement areas and loading and unloading areas; storm water runoff from deposits of airborne dust from building ventilation systems or spillage of feed or manure; discharges from land application fields that occur during land application; and storm water runoff from land application fields if wastes are applied during frozen, snow covered or saturated soil conditions or if application rates exceed the maximum nitrogen utilization of the vegetation grown.

3. Monitoring of Emergency or Unauthorized Discharge (Outfalls #001, #002, #013 and #014)

- a. Any unauthorized process waste discharge that occurs due to storage structure overflow shall be monitored once/day for flow, ammonia nitrogen as N, dissolved oxygen, BOD, pH, and temperature.
- b. Samples shall be collected of the discharge at the downgradient property boundary. Samples shall also be collected from any defined drainage that is above and below the receiving waters at the downgradient property boundary. If the receiving drainage is dry above the discharge point, report as no stream flow above the discharge point.
- c. Records shall be maintained for time, date, location, and duration of the discharge and an estimate of the discharge volume.
- d. Notify the department as soon as possible and no later than within 24 hours of any discharge that occurs and submit monitoring results within 30 days.

4. Nutrient Monitoring for Land Application (Outfalls #001, #002, #013 and #014)

- a. When raw manure is applied it shall be sampled and tested. Samples shall be collected once per quarter that land application occurs. Each sample shall be a composite sample with a minimum of 7 grab samples to adequately represent consistent analysis of the various types of manure. Samples shall be tested for Total Kjeldahl Nitrogen (TKN) as N, ammonia nitrogen as N, total phosphorus as P, and percent moisture content. Samples shall also be tested at least once/year for nitrate/nitrite nitrogen.
- b. Materials (calcium deposits) from the concrete pits shall be sampled and tested separately. At least one composite sample shall be collected prior to land application and every three months thereafter while land application occurs. Each composite sample shall consist of at least 20 grab samples. Materials shall also be tested for total Kjeldahl nitrogen as N, ammonia nitrogen as N, total phosphorus as P, and percent moisture content.

5. Land Application Operational Monitoring (Outfalls #001, #002, #013 and #014)

- a. The inches of precipitation received at the production site shall be recorded daily and shall be reported quarterly for daily amounts, monthly totals, and cumulative total.
- b. Daily records shall be kept on file by each field for land application locations, volumes, acres, inches/hour, inches/acre, or feet<sup>3</sup>/acre, and which pit was being emptied. These shall be summarized in the quarterly and annual reports.
- c. Monthly measurements shall be made of the process waste level in each pit and shall be recorded as feet below the top of the pit. These shall be summarized in the quarterly and annual reports.
- d. Nitrogen application rates, crop yields, crop nitrogen requirements, and other operational monitoring shall be recorded for each field and reported in the annual report.

6. Storm Water Runoff Monitoring from Production Sites

- a. Samples required in this paragraph shall be collected at the storm water monitoring locations listed in Section A of this permit.
- b. Storm water runoff shall be monitored once per quarter (4 times per year) for ammonia nitrogen as N, nitrate/nitrite nitrogen as N, total phosphorus as P, total suspended solids, pH, and temperature.

- c. Samples shall be collected during storm water runoff events that occur after rainfalls of at least 0.5 inch within a 24 hour period. Collect the sample as soon as practicable after the beginning of storm water runoff.
- d. If there are no runoff events during a monitoring period, report as no discharge of storm water.
- e. A storm water runoff event is defined as a 24 hour period after the start of runoff. Runoff occurring after that will be considered as a separate runoff event.
- f. Storm water runoff less than 2.5 mg/L ammonia shall be considered uncontaminated storm water and may be discharged through this outfall. Storm water runoff exceeding 2.5 mg/L ammonia is considered process waste and must comply with no-discharge requirements.

7. Soil Monitoring

- a. Composite soil samples shall be collected for all approved sites where land application will occur within the next 12 months. Soil pH, percent organic matter, cation exchange capacity, and available phosphorus as P (Bray P-1 test method) shall be sampled prior to land application and once every three (3) years thereafter, unless no additional land application has occurred at the site. Samples shall be collected for the surface 0-6 inches.
- b. Soil sampling shall be in accordance with University of Missouri (MU) publication G9110, "Sampling Your Soil For Testing" or other methods approved by the department.
- c. Soil testing methods shall be in accordance with North Dakota Agricultural Experiment Bulletin 499-Revised, "Recommended Chemical Soil Test Procedures for the North Central Region" or other test methods approved by the department.
- d. The annual report shall include a summary of the soil test results for each field.

8. Sample Collection, Preservation and Testing Methods

Preservation and analytical procedures shall be in accordance with the most current version of Standard Methods for the Examination of Waters and Wastewaters or other approved methods listed in 10 CSR 20-7.015(9)(A).

9. Required Notification of Releases

- a. Any process waste discharge into waters of the state shall be reported to the Department as soon as possible and no later than 24 hours after the start of the discharge.
- b. Spills or leaks that are contained on the property shall also be reported to the Department within 24 hours, if the flow exceeds 1,000 gallons per day or 130 cubic feet per incident. This includes leaks from sewer lines, basins, pits, solids spreaders other land application equipment or irrigation systems.

10. Annual Report

An annual report is required in addition to the quarterly reporting under Section A of this permit. The annual report shall be submitted by January 28 of each year for the previous growing season or an alternate 12 month period approved by the Department and listed in the Operation and Maintenance Manual. This report shall be submitted using a format approved by the Department and shall include a summary of the monitoring and record keeping required by the Special Conditions and Standard Conditions of this permit.

11. Design Parameters

The design parameters listed below are operational guidelines to predict nutrient generation. Any proposed increases must be reported in accordance with Standard Conditions Part I, Section B, Paragraph 1., and may require a permit modification prior to the proposed change.

- a. Design Population Equivalent: The Design Population Equivalent is the human equivalent based on the annual average daily pounds of animals at the design capacity listed in the permit application. The average daily pounds of animals multiplied by a standard conversion factor equals the Design (human) Population Equivalent. The conversion factors are: 0.015 swine, 0.014 beef; 0.020 dairy; 0.030 laying hen; 0.040 turkey; and 0.05 poultry broiler.

- b. Design Flow: The design flow is based on the maximum annual flows including storm water flows during the one-in-ten year return frequency for annual or 365 day rainfall minus evaporation. The design flow is based on the time period when the flows are generated at the production site and not when flows are land applied. Portions of the design flow may be stored and carried over into the following year for land application, as necessary. Permittee may exceed the design flow when precipitation in any 365 day period exceeds the one-in-ten year annual precipitation amount.
  - c. Animal Units: Animal Units are based on the maximum number and weight classification of animals in the permit application.
  - d. Concrete Pit Levels: As an operational guideline, the concrete pit levels should be maintained between the lower and upper operating levels during normal operations. If the upper operating level is exceeded, the operation shall take all reasonable measures to lower the pit level as soon as reasonably practicable. Within seven (7) days of the date that a pit's level exceeds the upper operating level, the permittee shall mail a report to the department that identifies the pit(s), the pit level in inches below the overflow level and actions taken to reduce the pit levels.
  - e. Reporting Requirements: The actual operation numbers compared to the permitted design parameters shall be summarized in the annual report.
12. Construction Permits  
All process waste systems shall be constructed in accordance with a construction permit except where exempted by state regulations under 10 CSR 20-6.300.
14. Emergency Spillways  
All earthen storage basins shall have emergency spillways maintained as shown on the approved construction plans or approved as-built specifications.
13. HB1207  
Permittee shall maintain compliance with all applicable provisions of state law under 640.700 to 640.755 RSMo, Supp.1996 (HB1207).
14. Reopener Clause
  - a. This permit may be reopened and modified or alternatively revoked and reissued, to incorporate new or modified limitations or other conditions pertaining to phosphorus application rates to soils, or other special conditions as may be necessary to protect waters of the state.
  - b. Nutrient Management Plan.  
The permit may be modified or reopened to require submittal of a Nutrient Management Plan in accordance with USEPA and USDA guidelines and regulations or where determined appropriate by the department to meet water quality standards for nutrients.
15. Best Management Practices  
The permittee shall follow the attached Best Management Practices (BMP) for CAFO dated February 16, 1996, which are hereby incorporated as though fully set forth herein. Exceptions for BMP's may be approved on a case-by-case basis by the permitting authority and must be listed in the permit in accordance with public participation and permit modification rules under 10 CSR 20, Chapter 6.
16. Land Application Site Locations  
The permittee shall land apply process wastes only to suitable sites located within the overall property boundaries and descriptions listed in the permit application and associated operation plans. Permittee requests for additional sites including non-owned property must follow permit modification procedures prior to land application.

Permittee may sell or give away manure providing the following conditions are met:

- a. Requirements on Johnson County Egg Farm's (JCEF) delivery or land application of JCEF chicken manure on land not covered by JCEF's Missouri State Operating Permit.
- (1) Manure shall be hauled in vehicles that will not deposit manure on public roadways.
  - (2) Manure shall not be applied on frozen, snow-covered or saturated fields.
  - (3) Manure shall not be stockpiled outside for more than two weeks and must be located where runoff will not enter waters of the state.
  - (4) Manure shall not be applied to fields with slopes over 20%.
  - (5) Manure applied to fields without permanent vegetation and with slopes between 10% and 20% shall be incorporated within forty-eight hours of application.
  - (6) The application rate shall be a maximum of four tons of dry litter per acre per year. Individual lagoon analysis shall be used to determine the gallons of manure to be applied per acre per year so as to ensure JCEF does not inject more than 150 pounds of nitrogen per acre per year. In the event the maximum amounts (dry or wet) are exceeded, the Plant Available Nitrogen (PAN) approach shall be used.
  - (7) Manure must be applied uniformly without depositing clods or clumps.
  - (8) Manure shall not be applied within:
    - (a) 300 feet from any losing streams, open sinkholes, water supply wells, or water supply reservoirs;
    - (b) 50 feet from public roads, or property boundaries;
    - (c) 100 feet from permanent flowing streams and intermittent stream.
  - (9) Manure shall be applied as close as practical to when plants will utilize nutrients. Manure shall not be applied to fields with dormant vegetation.
  - (10) A current analysis of the manure for nitrogen, phosphorous and potassium must be provided to the landowner or operator of the land where the manure from JCEF is to be land-applied. The pounds of nitrogen applied per acre/year shall not exceed the nitrogen uptake of the crop grown.
  - (11) An assessment shall be conducted on each field for potential phosphorus and nitrogen runoff. Land application rates may be limited by phosphorus based on the assessment.
  - (12) Records of the name(s), date(s), the amount and location of manure delivered or land-applied shall be included in the annual report and maintained for a period of five years.
- b. Requirements to purchase or receive chicken manure from JCEF:

The following form shall be completed by the landowner, or operator of the land where the manure from JCEF will be land-applied and shall be incorporated into a written agreement between JCEF and the landowner or operator of the land where the manure from JCEF will be land-applied. A copy of this checklist will be included in JCEF's annual report and maintained for a period of five years. The annual report shall include the amount and location of the manure received or purchased.

\_\_\_\_\_ certifies that:

1. Manure will be hauled in vehicles that will not deposit manure on public roadways.
2. Manure will no be applied on frozen, snow-covered or saturated fields.
3. Manure will not be stockpiled outside for more than two weeks and must be located where runoff will not enter waters of the state.
4. Manure will not be applied to fields with slopes over 20%.
5. Manure applied to fields without permanent vegetation and with slopes between 10% and 20% will be incorporated within forty-eight hours of application.
6. The application rate will be a maximum of four tons of dry litter per acre per year. Individual lagoon analysis will be used to determine the gallons of manure to be applied per acre per year so as to ensure LCEF does not inject more than 150 pounds of nitrogen per acre per year. In the event the maximum amounts (dry or wet) are exceeded, the PAN approach shall be used.
7. Manure will be applied uniformly without depositing clods or clumps.

8. Manure will not be applied within:
  - a. 300 feet from any losing streams, open sinkholes, water supply wells, or water supply reservoirs;
  - b. 50 feet from public roads, or property boundaries;
  - c. 100 feet from permanent flowing streams and intermittent streams.
9. Manure shall be applied as close as practical to when plants will utilize nutrients. Manure shall not be applied to fields with dormant vegetation.
10. An assessment shall be conducted on each field for potential phosphorus and nitrogen runoff. Land application rates may be limited by phosphorus based on the assessment.

I have read and understand the above requirements and agree to comply with each.

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Date: \_\_\_\_\_

19. Land Application Limitations

- a. Process wastes should be land applied as close as practicable to when plants will utilize nutrients. Fall application for the spring crop season may be used where appropriate, but should not be the primary application period. Process wastes should be utilized as a nutrient resource.
- b. Avoid application or reduce application rates and modify application practices when there is a local, applicable weather forecast or observation by permittee of an imminent or impending storm event.
- c. Land application shall cease as soon as practicable upon occurrence of any precipitation.
- d. Land application equipment shall be operated in such a manner that wastes do not reach an adjoining property line. Rigorous inspection procedures shall be implemented for insuring that no visual spray drifts across public roads, property boundaries, or surface water sources. If the employee detects wind blown mist within 50 feet of an adjoining property line, public roadway, or surface water source, the application equipment shall be either moved further way or shut down.

20. Nutrient Management

- a. Nitrogen. The permittee shall not exceed the plant available nitrogen management approach as listed in this permit.
- b. Phosphorus. Application rates shall not increase soil P levels above 120 pounds per acre soil test P using Bray P-1 test method. When soil test P is at or above 120 pounds per acre, the nutrient application rates shall not exceed the annual crop uptake levels for phosphorus. When state NRCS standards and guidelines become available, the permit will be revised to include the Phosphorus Threshold and Phosphorus Index methods to be developed under the USDA, NRCS National Policy, General Manual, Part 402.06.
- c. The actual application rates for a given year or growing season must be adjusted based on the approved management approach and the actual wastewater and soil testing results and crop requirement. If crop yields are less than that predicted, the application rates must be reduced or the yields increased through appropriate changes in management practice.

21. Plant Available Nitrogen Procedure

- a. The Plant Available Nitrogen (PAN) method predicts the typical amount of nitrogen that is expected to be available to plants based on the median or average values from the reference publications listed herein. Actual nitrogen available to plants during a growing season may be more or less than the predicted values due to climatic variations. Supplemental nitrogen applications during the growing season may be added to correct plant deficiencies. Process waste and fertilizer nitrogen applications shall be based upon crop nitrogen requirements based on realistic crop yield goals. The process waste application rate shall be calculated as follows:

$$\text{PAN} = \text{CNR} - \text{SRN} - \text{CFN}$$

WHERE: **CFN** = Commercial Fertilizer Nitrogen applied in pounds N/acre.  
**CNR** = Crop Nitrogen Requirement in pounds N/acre  
**PAN** = Plant Available Nitrogen in manure solids and sludges  
expressed as annual pounds N/acre.  
**SRN** = Soil Residual Nitrogen in pounds N/acre.

- b. Plant Available Nitrogen (PAN) is calculated as follows:

$$\begin{aligned} \text{PAN} = & [\text{Ammonia Nitrogen}] \times [\text{Availability Factor}] \\ & + [\text{Organic Nitrogen}] \times [\text{Availability Factor}] \\ & + [\text{Nitrate Nitrogen}] \times [\text{Availability Factor}] \end{aligned}$$

Note: For anaerobic treated wastewater and sludges, the nitrate nitrogen amounts will be negligible and can be ignored.

- c. Plant Available Nitrogen (PAN) Availability factors for manure solids and sludges are as follows:

- (1) Average availability factors for all fields:

<b><u>Type of Nitrogen</u></b>	<b><u>Surface Application</u></b>	<b><u>Immediate Incorporation or Subsurface Injection</u></b>
Organic	0.25 - 0.75*	0.25 - 0.75*
Ammonia	0.6**	0.9**
Nitrate	0.9**	0.9**

\* Organic Nitrogen = [Total Kjeldahl Nitrogen as N] - [Ammonia as N].

Availability Factors based on time after application and waste type are:

Type of Manure by Animal Type and <u>Waste Storage Method</u>	Availability Factor by Time Period			
	Year 1	Year 2	Year 3	Cumulative Year 3+
Anaerobic Lagoons (all animals/poultry)	0.35	0.18	0.09	0.62
Liquid storage basins (except poultry)	0.35	0.18	0.09	0.62
Poultry - storage basins and dry litter	0.60	0.10	0.05	0.75
Manure solids – beef, dairy, swine				
without bedding	0.35	0.18	0.09	0.62
with bedding	0.25	0.13	0.07	0.45

NOTES: Year 1 is the current year of manure application; year 2 is the previous year of manure application; and year 3 is manure application two years ago. Nitrogen availability for years 1, 2 and 3 must be added when manure is applied in consecutive years. The cumulative factor is used when manure is applied at about the same rate for 3 consecutive years or longer.

\*\* Inorganic nitrogen availability (nitrate + ammonia) based on the typical soil and climate conditions when considering additions due to precipitation, dry deposition, and foliar absorption versus losses due to volatilization and denitrification (10% denitrification loss is included). The permittee may choose to use this average value for all fields or may adjust the N availability based on site specific soil conditions using the tables below under paragraph 21.c.2.

(2) Field Specific Availability Factors for Inorganic Nitrogen.

For ammonia and nitrate nitrogen factors, the permittee may choose to use the average value for all fields under paragraph C.1. above, or may use the alternate factor on a field specific basis using the tables below. The approved factors for each field will be included in the O&M Manual.

<b>Table A. Alternate Field Specific Availability Factor for Surface Application</b>					
Soil Organic Matter %	Excessively well drained	Well drained	Moderately well drained	Somewhat poorly drained	Poorly drained
% of inorganic N (manure., precipitation) available					
< 2	71	66	62	56	45
2-5	66	60	56	49	30
> 5	63	56	49	38	19
Adapted from USDA-NRCS, National Engineering Handbook, Part 651, Animal Waste Management Field Handbook(AWMFH),April 1992, Tables 11-6 and 11-8.					
<b>Table B. Alternate Field Specific Availability Factor for Sub-Surface Injection or Immediate Incorporation.</b>					
Soil Organic Matter %	Excessively well drained	Well drained	Moderately well drained	Somewhat poorly drained	Poorly drained
% of inorganic N (manure., precipitation) available					
< 2	89	84	78	70	57
2-5	84	76	70	62	38
> 5	80	70	62	48	24
Adapted from USDA-NRCS, National Engineering Handbook, Part 651, Animal Waste Management Field Handbook(AWMFH),April 1992, Tables 11-6 and 11-8.					

d. Soil Residual Nitrogen (SRN).

- (1) For Annual Crops, the nitrogen availability from soil organic matter must be included based on soil CEC and crop season as follows:

$$\text{SRN in pound N/acre}^* = [\text{percent organic mater}] \times \text{Soil Availability Factor}$$

<b>Soil Availability Factor by Soil CEC Ranges and Organic Matter</b>				
<b>Growing Season</b>	<b>Organic Matter</b>	<b>CEC &lt;10</b>	<b>CEC 10-18</b>	<b>CEC &gt;18</b>
<b>Summer</b>	1%	40*	20	10
<b>Winter</b>	1%	20*	10	5

**\*Note:** If CEC is less than 10 and organic matter is 1.5% or greater, the total SRN is constant at 60 pounds nitrogen for summer and 30 pounds for winter.

- (2) For Perennial Crops the SRN is considered zero(0) for purposes of these calculations because the SRN has already been considered in the crop fertilization recommendations in the referenced publications.

- e. Conversion Factors for laboratory testing results:  
[mg/L or mg/kg or ppm] x [conversion factor] = [pounds per Unit Volume]

<u>Unit Volume</u>	<u>Conversion Factors</u>
lbs/acre inch	0.226
lbs/1,000 gallons	0.0083
lbs/100 cubic feet	0.0062
lbs/ton (wet wt)	0.002

- f. Crop nitrogen requirements shall be based on University of Missouri publication, Soil Test Interpretations and Recommendations Handbook, as revised or one of the other reference publications listed in this permit. Alternate reference publications may be used only upon prior approval by the department and shall be listed in the approved Operation and Maintenance Manual.
- g. If a crop is not harvested or grazed, the PAN rate shall not exceed 40 lbs/acre/year and grass vegetation must be maintained on the site.
- h. PAN calculations for land used for grazing cattle shall include both manure additions by cattle and crop nitrogen consumed by the cattle based on actual cow days per acre/year. This permit does not authorize grazing of cattle where prohibited by state statute under Chapter 350 RSMo.
- i. PAN calculations, application amounts, crop yields and crop removal rates shall be listed in the annual report.
- j. Alternate nitrogen availability factors may be considered based upon site-specific conditions for each field and submittal of scientific justification. Alternate factors will be reviewed and approved by the department as part of the Operation and Maintenance Manual.
- k. Supplemental nitrogen may be added to row crops when determined necessary for proper plant growth based on testing of plant vegetation or soil nitrate testing during the growing season. Procedures will be reviewed and approved by the department as part of the Operation and Maintenance Manual.

22. Operation and Maintenance Manual

The permittee shall develop, maintain and implement an Operation and Maintenance (O&M) Manual that includes all necessary items to ensure the operation and integrity of the waste handling and land application systems. Copies of the O&M Manual and subsequent revisions shall be submitted to the department's Water Pollution Control Program and Regional Office for review and approval. The O&M Manual shall include, but not limited to, the following:

- a. Detailed topographic maps of approved acres showing all land application fields including the identification numbers for each field. The maps shall also indicate separation distances from streams, ponds, wells, and property lines and shall indicate areas exceeding 10 percent slopes and other areas that are not suitable for land application. The maps shall also include the location of all buildings, pits underground terrace outlets, dead animal storage or disposal areas, domestic wastewater treatment systems and other waste handling units.
- b. Start up procedures, field supervision during operation, and shutdown procedures of land application equipment on approved acres.
- c. Procedures for providing the separation distances required by this permit and as specified in 10 CSR 20-8.020 (15) (B).
- d. Sample collection, preservation, and testing procedures.
- e. Procedures for determining Plant Available Nitrogen (PAN) loading rates.
- f. Record keeping forms for approved acres tracking each field, and storage structure. This shall include testing results, crops, yields, and application rates for each field. Records for each field shall include dates and amounts applied.
- g. A procedure for promptly reporting spills or discharges to the permittee plant manager and to DNR.
- h. A program to keep debris out of the concrete pits.
- i. A program for routine, unannounced inspections of approved land application sites and records to ensure that all directives for land application from the permittees' central office are being followed. Records of the inspections shall be maintained by the permittee and made available to the department upon request.
- j. A procedure to assure that all appropriate employees are properly trained in operation of the waste systems and are familiar with the O&M Manual.



- k. Procedure for adjusting application periods and rates based on soil infiltration capacity, soil moisture content, and percent of soil field (saturation) capacity.
- l. List of number, size, and capacity of waste removal, hauling and land application equipment.

22. Underground Tile Outlets at Approved Land Application Sites

- a. Any underground tile outlets from field terraces or subsurface field drainage tiles shall be shown on the site maps for all land application sites.
- b. To prevent potential discharge of process waste during land application on fields with underground tile outlets for terraced fields, the permittee shall either cap the inlets at the fields during land application, provide a 150 feet grass buffer area between the inlets and land application area, or install secondary containment structures below the tile outlets.
- c. The Operation and Maintenance Manual shall include specific operating details for these fields to prevent discharge of process waste during land application or leaching of nitrogen through the soils and into the tile drainage system.

23. Bird Mortalities

Disposal of bird mortalities shall be conducted in compliance with Chapter 269 RsMO. There shall be no discharge from the dead bird holding areas to the ground surface.

24. Operating Levels

Between June 1 and November 30 of each year, the lagoon cells shall be lowered to their respective minimum operating levels as specified in this permit or to a combination of levels which equals the storage volume of all three cells combined.